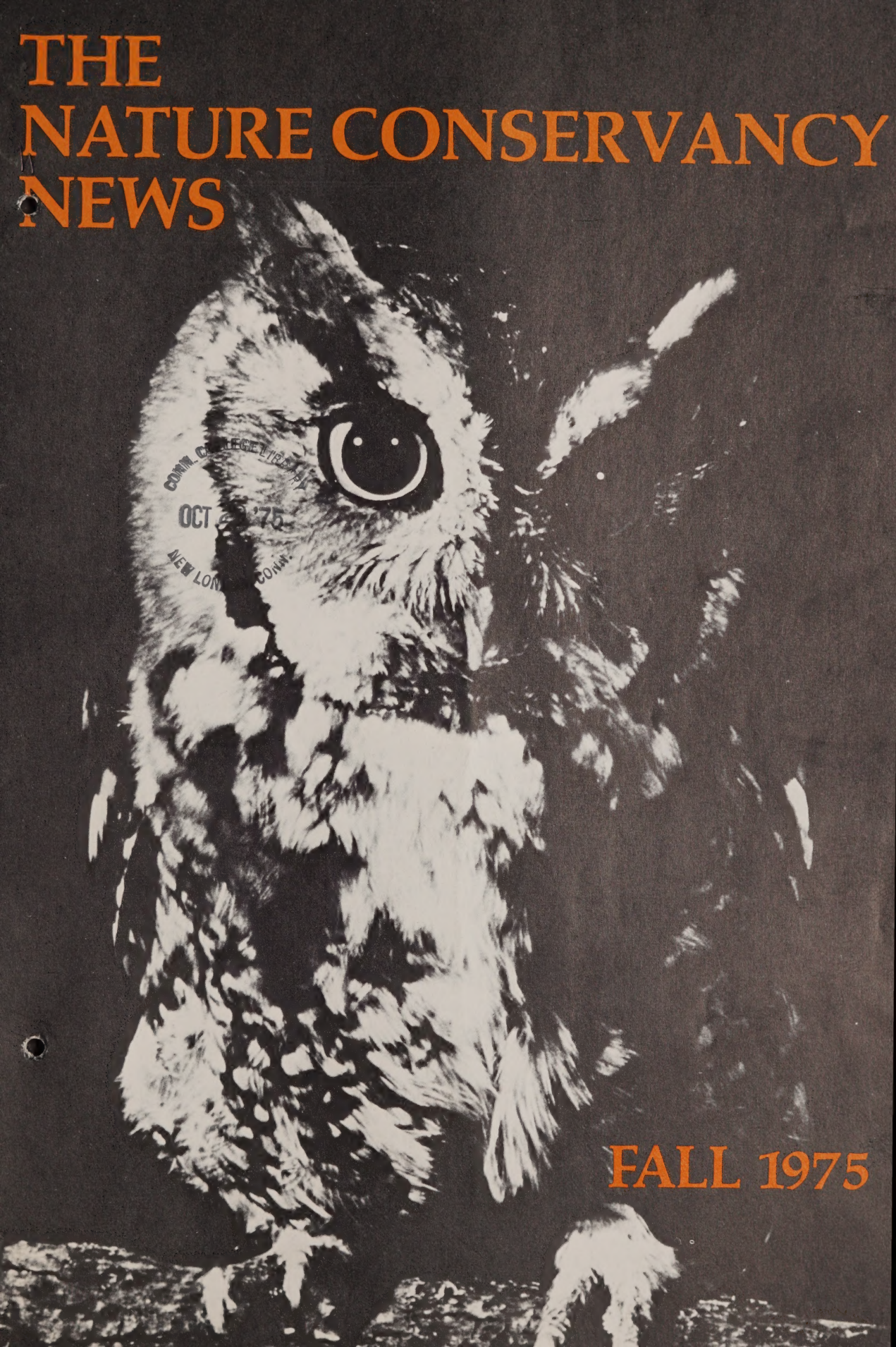
THE NATURE CONSERVANCY NEWS


CONN. COLLEGE LIBRARY
OCT '75
NEW LONDON, CONN.

FALL 1975

NEW LIFE MEMBERS

An individual becomes a Life Member of The Nature Conservancy upon contribution of $500 for membership dues. The contribution is added to the Guarantee and Income Fund for the Conservancy's endowment.

Mr. Jerry L. Billingsley
Missouri

Mrs. Emma Buckley
Illinois

Mr. Robert P. Claggett
New Jersey

Mrs. Archibald P. Cochran
Kentucky

Mrs. Franklin M. Crosby, Jr.
Minnesota

Mrs. Gaylord Davidson
Minnesota

Mr. Hugo DeNeufville
New Jersey

Ms. Marjorie F. Dixon
Minnesota

Mr. T. H. Frison
Colorado

Mr. Richard H. Gamble
Maryland

Mrs. Edward L. Ginzton
California

Mrs. John Graham, Jr.
Virginia

Mrs. Baylor O. Hickman
Kentucky

Dr. Marion T. Jackson
Indiana

Mrs. Paul R. Kaiser
Pennsylvania

Ms. Anne W. Knight
Washington

Mrs. William M. Lamont
South Dakota

Ms. Laura A. Lawrence
Virginia

Mrs. William G. Lord
New York

Ms. Betsy Loyless
Georgia

Mrs. William T. Lusk
Connecticut

Mrs. Nora B. McCarthy
Texas

Ms. Ijain R. Meltzer
Minnesota

Mr. Rodman W. Moorhead, Jr.
Kentucky

Mr. John M. Pager, Jr.
Wisconsin

Mr. William F. Pedersen, Jr.
District of Columbia

Mr. H. William Reed
Connecticut

Mr. Evert I. Schlinger
California

Mr. Peter Schoon
Minnesota

Mr. Robert M. Snyder
West Virginia

Mr. Emerson Stone
Connecticut

Mr. James L. Vance
Minnesota

Mrs. Doris Westfall
Illinois

Mr. Robert H. Whitney
Massachunetts

Mr. Armin Willig
Kentucky

Mrs. Margaret C. Wolf
Illinois

Mrs. Arthur F. Woodrow
Arizona

Mrs. Dorothy S. Wright
California

NEW CORPORATE MEMBERS (ANNUAL $1000 MINIMUM)

Alcoa Foundation
Pennnylvania

BASF Wyandotte Corporation
New Jersey

Del Monte Properties Company
California

Exxon Company, U.S.A.
Texas

MCA, Inc.
California

United California Bank
California

RENEWING CORPORATE MEMBERS

Dow Chemical Company (2nd year)
Michigan

General Mills. Inc. (4th year)
Minnesota

State Bank of Albany (4th year)
New York

Printed on 60% reclaimed fibers.

OFFICERS

CHAIRMAN OF THE BOARD
William D. Blair, Jr., Maryland

VICE CHAIRMEN
Frank D. Boren, California
H. P. J. Duberg, Florida
Alfred Heller, California

SECRETARY
Richard S. Weinstein, Connecticut

TREASURER
Robert Bennett, District of Columbia

BOARD OF GOVERNORS

John E. Andrus III, Minnesota
John D. Archbold, Virginia
Frederick E. Balderston, California
Mrs. W. L. Lyons Brown, Kentucky
Wallace C. Dayton, Minnesota
G. William DeSousa, Connecticut
K. William DuPont, Delaware
Richard H. Durrell, Ohio
Richard H. Goodwin, Connecticut
Charles C. Haffner III, Illinois
R. Phillip Hanes, Jr., North Carolina
William E. Howard, Pennsylvania
Roy E. Larsen, New York
Warren M. Lemmon, California
Dan W. Lufkin, Connecticut
Thomas L. McCall, Oregon
M. Graham Netting, Pennsylvania
John B. Oakes, New York
Eugene P. Odum, Georgia
Ruth Patrick, Pennsylvania
A. Timon Primm III, Missouri
John T. Ricks, New York
Mrs. David Rockefeller, New York
Francis W. Sargent, Massachusetts
Mrs. L. M. C. Smith, Pennsylvania
Athlestan Spilhaus, District of Columbia
Stephen H. Spurr, Texas
Mrs. Thomas M. Waller, New York
Mrs. Charles P. Yarn, Jr., Georgia

NATIONAL OFFICE

Patrick F. Noonan, **President**
G. Jon Roush, **Executive Vice President**
Robert E. Jenkins, **Vice President, Science**
John W. Humke, **Vice President, Governmental Programs**
David E. Morine, **V.P., Land Acquisition**
Orville M. Tice, **V.P., Development**
William B. Carlin, **N.Y. Development Office**
Richard G. Traurig, **V.P.-Legal Counsel**
Thomas J. Fitzgerald, **Controller**
Ray M. Culter, **Preserve Management**
Jack Lynn, **Communications**
Greg Low, **Planning and Support Services**
R. Michael Wright, **International Program**

EASTERN REGION

Bradford C. Northrup, **Vice President**
Thomas L. Newman, **Mid-Atlantic Representative**

SOUTHEAST REGION

Riesley R. Jones, **Vice President**

MIDWEST REGION

Geoffrey S. Barnard, **Vice President**
Dennis Wolkoff, **Indiana Field Office**
G. Rodney Miller, **Michigan Field Office**

WESTERN REGION

Henry Little, **Vice President**
Ken Margolis, **Northwest Field Office**
J. Gordon Buchmann, **Rocky Mountain Field Office**

THE NATURE CONSERVANCY NEWS

Published Quarterly by The Nature Conservancy
1800 North Kent Street
Arlington, Virginia 22209
SUE DODGE, EDITOR

Volume 25, Number 4 **Fall 1975**

New Projects 4
A review of projects begun in recent months

Mile Hi Ranch and the Conservancy's Ramsey Canyon Preserve 9
Conservancy purchases "Hummingbird Capital of the U.S.A."

Legend of the Land: San Francisco Bay Before the Argonauts 14

Listen to the Prairie 16
Prime South Dakota prairie preserved as a memorial to Samuel H. Ordway, Jr.

Ecology Forum: Endangered Plant Species: A Soluble Ecological Problem 20

Notes 22

COVER PHOTO: Screech Owl
INSIDE COVER PHOTO: American Beech, by Michael P. Gadomski.

LAND CONSERVATION THROUGH PRIVATE ACTION

The Nature Conservancy is a national conservation organization, receiving its support from the public, whose resources are devoted to the preservation of ecologically and environmentally significant land.

Some 773,321 acres of forests, swamps, marshes, prairies, mountains, beaches, and islands in 1,460 projects throughout the United States, have been saved from destruction by the Conservancy since the acquisition of its first preserve in 1954.

The Nature Conservancy works in three ways to protect threatened natural areas: by purchase of land with funds raised through public subscription, by acceptance of donations of land, and by advance acquisition of land for local, state, and federal governments.

A member-governed non-profit organization, The Nature Conservancy was incorporated in 1951 in the District of Columbia for scientific and educational purposes.

ANNUAL MEMBERSHIPS

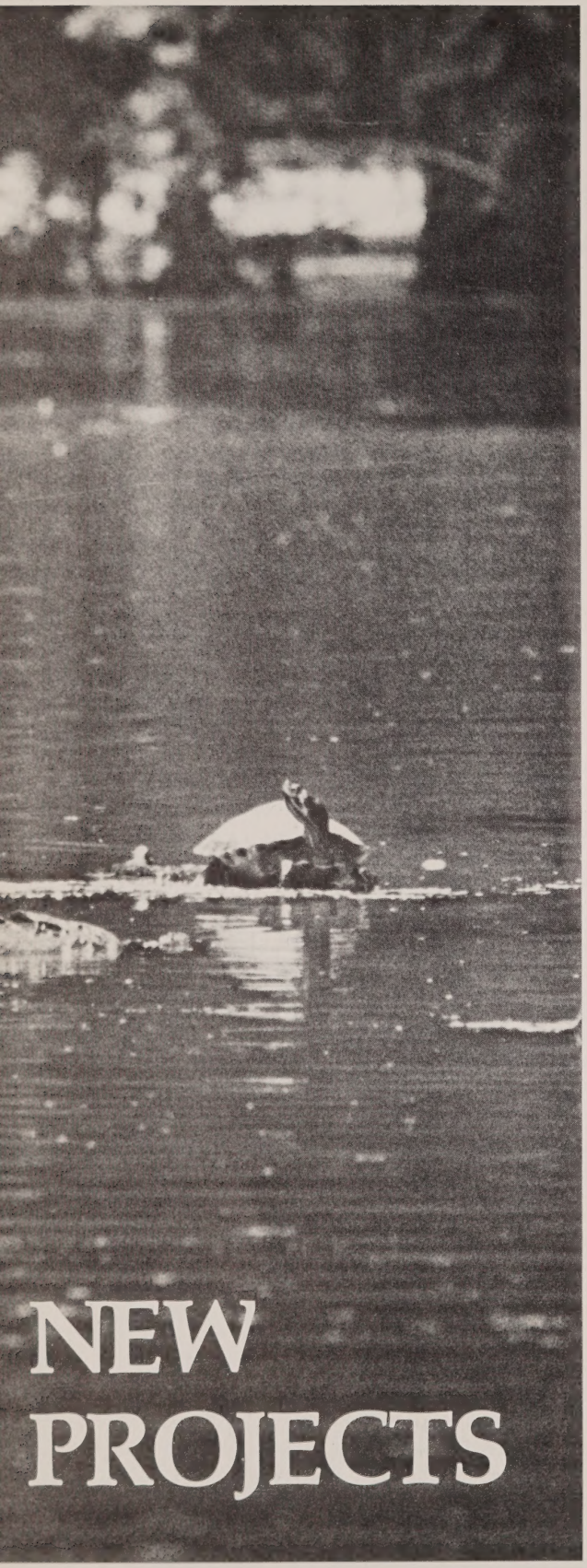
$1,000 Corporate (Minimum)	$100 Guarantor	$15 Family
	$50 Supporting	$10 Subscribing
	$25 Contributing	$5 Junior (under 18)

LIFE MEMBERSHIP

$500

Members receive the *News*.
Contributions to The Nature Conservancy are tax-deductible.

Copyright 1975
The Nature Conservancy



NEW PROJECTS

The Conservancy's efforts to protect important natural areas often depend on local project fundraising. Given the ability to purchase land quickly through loans from the Conservancy's Project Revolving Fund, Conservancy chapters, committees and affiliates subsequently undertake fundraising campaigns to repay the loans and ensure the protection of areas that would otherwise be lost.

Fundraising campaigns for four of the projects listed below—Tiger Creek, Florida; Little Black Slough, Illinois; Beaver Brook Valley, Massachusetts; and Mt. Holly, New York—are underway. Please help by supporting these important projects.

Connecticut

ELIZABETH CREAMER PRESERVE (Hartford County). A gift of Mrs. Elizabeth L. G. Creamer, the 40-acre tract consists of oak and mixed hardwood forest traversed by a small seasonal stream. The property has been transferred to the Granby Land Trust for management as a nature preserve.

GAN KATAN PRESERVE (Fairfield County). The 10-acre preserve includes forested upland, three acres of swamp, a small beech-covered hummock, and reverting farmland. Haviland Brook flows through the property. A gift of Carolyn L. Gaines, the preserve will be managed by a local committee and the Connecticut Chapter.

Florida

PORPOISE KEY (Monroe County). The 20-acre tract, purchased in cooperation with the U.S. Fish and Wildlife Service, is a mangrove-forested island in the Gulf of Mexico. The endangered key deer (*Odocoileus virginianus clavium*) finds refuge in the area, which will become part of Great White Heron National Wildlife Refuge.

TIGER CREEK—Addition—(Polk County). Pristine Tiger Creek flows for one mile through the tract, alternating between swamps and sandhills. Vegetation on the 320-acre property consists of pine and scrub oak on the upland; bayhead is common, with sweetbay, red bay and wax myrtle as dominant species. A fundraising goal of $92,000 has been set by the Florida Chapter.

Georgia

PIGEON MOUNTAIN PARK (Walker County). The 60-acre tract, purchased by the Georgia De-

partment of Natural Resources with the Conservancy's assistance, is part of a 12,000-acre wilderness which features magnificent rock formations, caves, waterfalls, mountain streams, and oak-hickory-pine forest. Identified as a priority site by the Georgia Heritage Trust Advisory Commission, the property will be managed by the Division of Fish and Game.

PROVIDENCE CANYON STATE PARK—Addition—(Stewart County). The 30-acre tract, an addition to Providence Canyon State Park, consists of open fields with scattered shortleaf pines. Purchased by the state with an option secured by the Conservancy, the property provides access and a new entrance to the state park.

Idaho

NICHOLS RANCH (Idaho County). In a joint effort with the U.S. Forest Service, the Conservancy purchased 51 acres in the heart of the Selway-Bitterroot Wilderness. The land is flat to gently rolling and is crossed by a tributary stream which flows into nearby Moose Creek. Ponderosa pine, lodgepole pine and other conifers surround a grassy meadow. As an integral part of the Wilderness, the area receives some use by the animals associated with the northern Rockies, including elk, moose, and black bear.

Illinois

LITTLE BLACK SLOUGH (Johnson County). The Slough, with its tall tupelos and 300-year-old bald cypress trees, is a remnant of the once-numerous river swamps now generally destroyed. The preserve is home for the rare Swainson warbler, and the last bobcat reported sighted in Illinois was seen in the Slough. A large and active heron rookery is found within the 2,506-acre area, as are deer, beaver, otter, and rare Indiana bats. Valued as high as $1.7 million, the Slough will be transferred to the state as a vital addition to the existing 1,110-acre Heron Pond Nature Preserve, a unit in the Illinois State Nature Preserve System. A $400,000 fundraising effort is being conducted by the Conservancy's Illinois Chapter.

Maine

OSBORN FINCH WILDLIFE SANCTUARY (Lincoln County). Situated on the west bank of the Medomak River, the 11-acre preserve is forested with old-growth coastal spruce with some white pine, white birch, and alder. A small spring-fed brook crosses the property and ospreys nest nearby. The preserve, a gift of the estate of Rae Osborn, will be transferred to the Town of Waldoboro for administration by its Conservation Commission.

PETIT MANAN POINT (Washington County). Jutting into the Atlantic about 50 miles southeast of Bangor, Petit Manan is one of the largest undeveloped peninsulas along Maine's coast. The wild, windswept area is covered with boreal spruce, alders, and leatherleaf bogs. Glaciated rock outcroppings overlook the sea and the two bays that edge the land. Big Pond, a 15-acre freshwater pond on the peninsula's southern end, provides an important resting place for migrating shorebirds. Black ducks, whimbrels, ruddy turnstones and black-bellied plovers are frequently seen, and ospreys and northern bald eagles nest here. The Conservancy purchased the 1,724-acre area, which comprises the major part of the peninsula, on behalf of the U.S. Fish and Wildlife Service.

SECOND ISLAND (Hancock County). A conservation easement on the 2-acre island is a gift of Mr. and Mrs. Allen G. Clark. Located in East Penobscot Bay, the rocky island is forested with spruce and fir.

STONE ISLAND (Washington County). One of the most rugged, steep-sided rocky islands on the Maine coast, the 70-acre island is covered with mature white spruce-balsam fir forest. Ospreys and great blue herons are reported to nest on the island, and herring and great black-backed gulls, black guillemots, and myrtle warblers are also found here. The Maine Chapter will manage the area and is currently fundraising for the purchase.

Maryland

O'DONNELL TRACT (Dorchester County). A gift of James and Anne O'Donnell, the 16-acre tract is bounded on the west by the Chesapeake Bay, and on the east by Oyster Cove. Approximately one-half of the property is tidal marsh while the other half supports mixed hardwood and conifer forest. Native marshland species breed and live on the property, and migratory birds use it as a stopover. Management is the responsibility of the Mid-Atlantic Field Office.

SEVERN RUN (Anne Arundel County). Purchased by the Conservancy in a joint effort with the State of Maryland, the 50-acre property is covered with second-growth pine and hardwoods and slopes down to the Severn River. A stream, the Sewall Spring Branch, flows through the northwest side of the property to the river. The tract will be-

come part of the state's Severn Run Natural Environment Area.

SUGARLOAF MOUNTAIN—Mackintosh Addition—(Frederick County). The Conservancy, in cooperation with the State of Maryland, purchased 245 acres at the base of Sugarloaf Mountain. Adjoining the Chadwick tract, recently purchased by the Conservancy for the state, the property is primarily rolling pastureland with approximately 80 acres of hardwood forest. Two pure streams cross the property, and the Monocacy River borders the tract for three-quarters of a mile. The purchase links the Chadwick property and lands owned by Stronghold, Inc., the owner of Sugarloaf Mountain Preserve, a registered National Natural Landmark.

Massachusetts

BEAVER BROOK VALLEY—Addition—(Middlesex County). The 14-acre property contains the highest portion of the Beaver Brook Valley esker, the largest esker in eastern Massachusetts. The tract, which brings the preserve's total to 81 acres, also includes a seven-acre esker-rimmed pond. The Conservancy's Beaver Brook Valley Committee manages the preserve and is currently seeking $5,000 for the project.

Michigan

BEAR RIVER (Emmett County). On behalf of the City of Petoskey, the Conservancy purchased 7 acres for inclusion in the city's greenbelt program. The tract will be transferred to the City of Petoskey for use as an outdoor laboratory and wildlife area.

DONAHEY WOODS (Alger County). The 2-acre property contains a relict mature hardwood forest, one of the few in the Upper Peninsula. The north boundary of the land slopes steeply down to the beach of Lake Superior. The tract will be conveyed to Burt Township for addition to Woodland Park.

FLINT RIVER—Tatro Tract—(Genesee County). In a cooperative effort with the Genesee County Park Commission, the Conservancy purchased 22 acres of hardwood forest fronting the north bank of the Flint River. The area is the first acquisition in a proposed scenic corridor between Holloway Reservoir and the Genesee Recreational Area.

HOLLOWAY RESERVOIR—Additions—(Genesee and Lapeer Counties). Five tracts totaling 44 acres were purchased for addition to this preserve which contains a blend of northern and southern tree species as well as a variety of herbaceous plants and shrubs.

MARION ISLAND (Grand Traverse County). Located in Grand Traverse Bay, the 201-acre island has over three miles of shoreline and is wooded with maple, birch, beech, pine, and hemlock. Considered the finest undeveloped island remaining in the Great Lakes, Marion Island will be transferred to the county for use as a natural area park. The half-million dollar purchase was made possible by a $250,000 gift of Mr. and Mrs. Eugene Power, and by matching funds provided by the Soil Conservation Service.

OMENA BEACH (Leelanau County). Fronting on Lake Michigan, the ½-acre beach was purchased on behalf of Leelanau Township for addition to lands already leased by the township. Acquisition of Omena Beach is part of the township's Bicentennial program.

Minnesota

BLUESTEM PRAIRIE, Minnesota Prairie Chicken Preserve System (Clay County). 720 acres of short-grass prairie lie within the range of the threatened greater prairie chicken. Judged to be the finest and largest remaining undisturbed prairie in the state, the area supports more than 300 floral species. The prairie, purchased by the Minnesota Chapter with funds provided by an anonymous donor, will be managed by the Chapter with the assistance of the Minnesota Department of Natural Resources.

CLARK'S SAND POINT LODGE (St. Louis County). Purchased on behalf of the National Park Service, the 25-acre tract includes 1650 feet of shoreline along Sand Point Lake. The tract, forested with spruce, balsam fir, aspen, northern pine, basswood and birch, contains numerous rock outcroppings. The land is to be transferred to the Park Service for inclusion in Voyageur's National Park.

SANDHILL CRANE MEADOWS (Morrison County). Crossed by Buckman Creek, the area's marsh and meadowland provide nesting and feeding ground for sandhill cranes. The 160-acre tract also contains floating sedge bog, prairie knolls, oak savanna and several oak "islands" on sandy uplands. Purchased by the Minnesota Chapter using funds provided by the Sarah-Maud Sivertsen Trust, the preserve is to be transferred to St. Cloud State College for management.

Mississippi

MISSISSIPPI SANDHILL CRANE SANCTUARY—Additions—(Jackson County). Four tracts totaling 277 acres were purchased in cooperation with the U.S. Fish and Wildlife Service. The land, consisting of pine savannas and lower woodland swamps, provides habitat for the rare and endangered Mississippi sandhill crane (*Grus canadensis pulla*). The areas are scheduled for transfer to the Fish and Wildlife Service for inclusion in a proposed national wildlife refuge.

Missouri

MT. VERNON PRAIRIE (CARL TRACT)—Addition—(Lawrence County). A gift of Mr. and Mrs. Ralph Lucas, the ½-acre property adjoins the existing 40-acre tallgrass prairie preserve.

Montana

CRAZY MOUNTAINS (Sweet Grass and Park Counties). 4,573 acres of prime Rocky Mountain wilderness were purchased on behalf of the U.S. Forest Service. The land ranges in elevation from 5,000 to 11,000 feet and includes lakes, meadows, grassland, alpine coniferous forest, and the headwaters of major streams and rivers. An inholding in Gallatin National Forest, the area is excellent habitat for Rocky Mountain goat, golden eagle, and native cutthroat trout as well as many other alpine species.

RATTLESNAKE CREEK (Missoula County). Situated between the existing Tom P. Green Memorial Park and Greenough Park, the area serves as a vital link in a comprehensive wild and natural area river park system. The 8-acre preserve has been transferred to Missoula County for management.

New Hampshire

QUINCY BOG NATURAL AREA (Grafton County). The 2-acre area lies adjacent to Quincy Bog Natural Area, a 40-acre preserve owned by Rumney Ecological Systems. The preserve includes a small bog pond surrounded by an extensive sedge meadow and mixed forest, and is known as an excellent example of a pond-bog community. The addition is to be transferred to and managed by Rumney Ecological Systems.

New York

BIG SIMONDS POND: SOUTH BAY (Franklin County). 50 acres on the south bay of Big Simonds Pond consist of a 4.5-acre island known as Pilot Point and 45 acres on the shore of the bay. The island, forested with cedar and pine, is a gift of Mr. Lewis G. Adams; a conservation easement on the rest of the property was also donated by Mr. Adams. The preserve, which contains an active beaver lodge and otter den, is a project of the Conservancy's Adirondack Conservancy Committee.

DAVID WELD SANCTUARY—Addition—(Suffolk County). A 23-acre gift of Mrs. Mary B. Weld brings the preserve's total to 80 acres. The preserve, fronting on Long Island Sound, consists of dunes and forested upland containing cherry, oak, beech, dogwood, and red cedar. The Long Island Chapter is responsible for managing the area.

DRAGON ROCK (Putnam County). Internationally recognized industrial designer Russel Wright and his daughter, Ann Wright, donated their 69-acre natural area and its environmentally designed home to the Conservancy. Situated on the side of a mountain overlooking the Hudson River, the area is wooded with old-growth mixed hardwoods and conifers including some 250-year-old hemlocks. A wide variety of species of wildflowers, vines, shrubs and ferns have been identified on the preserve. The house, designed by Wright to use only native materials, is carved into the north rim of an old quarry. Miles of carefully planned trails, developed by Wright, take advantage of magnificent views of the Hudson. The area will serve as a model preserve and as a focus for Conservancy activities in southeastern New York.

DUNCOMBE PRESERVE (Westchester County). A gift of Mrs. Frances R. Duncombe, the 48-acre property consists of densely wooded, rugged terrain sloping down to a swamp and a brook which forms the tract's eastern boundary. Located near two other Conservancy preserves—Marian Yarrow Nature Reserve and Grierson Wildlife Sanctuary—the property is frequented by pheasants, pileated woodpeckers, partridges, and small mammals native to the area. Management will be carried out by the committee which administers the Yarrow and Grierson preserves.

GRIFFITH PROPERTY (Suffolk County). The 13-acre tract contains an exceptionally fine example of South Shore hardwood forest with some trees estimated to be several hundred years old. A gift of Eleanor B. Griffith, the preserve is to be managed by the Long Island Chapter.

MT. HOLLY SANCTUARY (Westchester County). Situated to the north of the Cross River Reservoir, the property encompasses one of the six major feeder wetland areas for the Reservoir. The 221-acre area includes steep slopes forested with

hickory, yellow birch, beech, oak and maple and a pond in transition to swamp. A $245,000 fund-raising campaign has been launched by the Mt. Holly Sanctuary Committee.

North Carolina

JOCKEY'S RIDGE—Addition—(Dare County). 6 acres contain some of the ecologically critical "feeder lands" for nearby Jockey's Ridge, the tallest sand dune in the eastern United States. The land was purchased on behalf of the North Carolina Department of Natural and Economic Resources for inclusion in a proposed state park.

ROAN MOUNTAIN—Addition—(Avery County). The north end of the property is at the summit of Big Yellow Mountain (5400 feet) and consists of grass bald with deciduous forest of beech, maple, oak and sycamore covering the lower portions. The 450-acre property is to be leased to the Appalachian Trail Conference for management.

Ohio

PAUL WOODS—Addition—(Hamilton County). In a cooperative effort with the Hamilton County Park District, the Conservancy purchased 35 acres for inclusion in a regional park. The area consists of eastern deciduous forest, and provides habitat for pileated woodpeckers, blue-tailed skinks, and other native wildlife.

Oregon

ROGUE RIVER (Curry County). In cooperation with the U.S. Forest Service, the Conservancy purchased three tracts totaling 439 acres within the Scenic and Wild Rivers section of the Rogue. The Rogue is one of Oregon's finest rivers, with a rich fishery included coho and chinook salmon, and steelhead. Bird life includes great blue herons, ospreys, and pileated woodpeckers; river otters, deer, bear, and cougars also inhabit the area. The three tracts will be conveyed to the Forest Service for management.

Pennsylvania

SEGLOCH BOG (Lancaster County). Bordered by Segloch Creek, the property contains a spring-fed bog which is the habitat of one of the most significant populations of the Muhlenberg bog turtle (*Clemmys muhlenbergii*), an endangered species. The remainder of the 44-acre property consists of woodland and pasture. The area was purchased by Philadelphia Conservationists, Inc., with financial assistance from the Conservancy and the Western Pennsylvania Conservancy. Management will be the responsibility of the Philadelphia Zoological Society and Philadelphia Conservationists, Inc.

South Dakota

SAMUEL H. ORDWAY, JR. MEMORIAL PRAIRIE (McPherson County). The 7,480-acre prairie, a unit in the Ordway Prairie System, lies on the eastern edge of the Missouri Coteau, a low range of hills containing numerous lakes, potholes and marshes. The area's 400 separate wetlands, ranging from large lakes to seasonal ponds, make it an extremely productive waterfowl habitat and breeding ground. See story beginning on page 16.

Virginia

FRASER PRESERVE (Fairfax County). A 12/20 remainder interest in the 220-acre preserve was donated by Mrs. George B. Fraser. The preserve, which fronts a half mile of the Potomac River, is forested with white oak, sycamore, beech, and maple, and provides habitat for deer, waterfowl, woodcock, wild turkey, and other native species.

RAPPAHANNOCK WILDLIFE MANAGEMENT AREA (Fauquier County). In cooperation with the Virginia Commission of Game and Inland Fisheries, the Conservancy purchased two tracts totaling 3,800 acres. Fronting on the upper Rappahannock River for 5½ miles, the property contains predominantly oak-hickory forest on rolling land crossed by several streams. Acquisition of the property, which is in a section under study for designation as a state scenic river, will provide improved public access to the Upper Rappahannock, a white water canoe area.

Wisconsin

DON ANDERSON WOODS (Iowa County). The 119-acre tract, a gift of Mr. Don Anderson, consists of riverbottom forest, undulating black oak barrens, and a small backwater slough. The area has a wild character and a rich spring bird population. The preserve has been transferred to the University of Wisconsin for use as a scientific study area.

Vermont

MISSISQUOI NATIONAL WILDLIFE REFUGE—Addition—(Franklin County). The 895-acre tract consists of two parcels: one known as Metcalfe Island and the other as Payne Marsh. Part of the Missisquoi River delta complex, the low, flat cattail marsh and wooded swampland provide feeding and resting ground for migrating birds. Purchased on behalf of the U.S. Fish and Wildlife Service, the area is an addition to Missisquoi National Wildlife Refuge.

MILE HI RANCH

and the Conservancy's Ramsey Canyon Preserve

by Annette Boushey
Western Regional Office

Ninety miles southeast of Tucson in the midst of the vast Arizona-Sonora Desert, the Huachuca Mountain range rises like a small island. On one of its long northeastern slopes, an abundant year-round stream has carved a deep, winding gorge known as Ramsey Canyon.

Sheltered by steep hillsides and unusually high rock walls, Ramsey Conyon remains temperate and moist in contrast to the surrounding desert. This special climatic condition sustains a delicate and exceptionally diverse environment. Some of the plants and animals that are found in Ramsey Canyon occur only a few other places in the United States. The area's many rare and peripheral birds and fifteen different species of hummingbirds have made the canyon famous among birdwatchers. Mile Hi Ranch, a twenty-acre property that stretches across the mouth of Ramsey Canyon, in fact is known by its many friends as the "Hummingbird Capital of the U.S.A."

Along with a few other mountain ranges in southern Arizona and New Mexico, the Huachucas are just within the northernmost limits of the ranges of a number of subtropical species of birds, plants, reptiles and mammals. These species, many of which are spillovers from the fertile pine-oak woodland of Mexico's central plateau, are richly represented in Ramsey Canyon. Their presence accounts in part for the widespread recognition of the canyon's ecological significance, which has resulted in its registration as a National Natural Landmark by the U.S. Department of the Interior.

One of Ramsey Canyon's most remarkable features is a geological formation known as the box. Here the canyon narrows to a width of only about twenty feet, with sheer vertical walls several hundred feet high. The impressive formation acts as a kind of funnel through which cool air from the mountains is drawn down toward the warm desert

floor. The continual fresh breeze that blows through the box contributes to the canyon's unusual microclimate. The difference this makes to the vegetation of Ramsey Canyon is illustrated by the way its major ecosystems are compacted into a very small elevational range, with some plants growing as much as one thousand feet below their normal elevation. Because of this compression of the usual elevational zones of the Upper Sonora Desert, plants are seen in rare combinations, with prickly pear and bear grass, for example, occurring within a stone's throw of douglas fir.

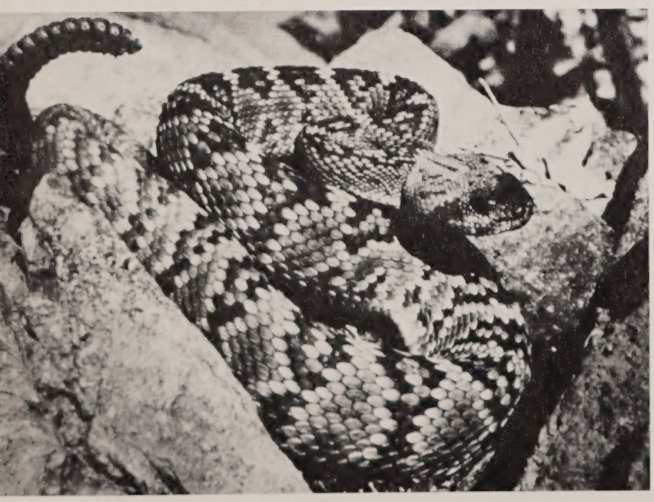
Among the higher elevation plants that grow for about one-half mile below the box are white fir, Mexican white pine, Arizona pine and mountain laurel. Apache pine and Chihuahua pine also grow in Ramsey Canyon, one of the few places in the country where these trees are found.

Blending into the upper boreal habitat are more common desert scrub plants such as manzanita, alligator-bark juniper and five different species of oak. The stands of Arizona sycamore along Ramsey Creek are exceptionally large and old, and the bigtooth maples are strikingly lovely, especially when their leaves become brilliantly colored in the autumn.

As the canyon opens into the wider valley floor, the full array of desert plants occurs, including agave, yucca, century plant and many kinds of cacti. The ocotillo that grows on the lower hillsides of Mile Hi Ranch appears lifeless for part of the year, but a first rain brings back its green leaves almost overnight, and brilliant red flowers appear on its spindly stalks in the spring.

Along the creek, a thick growth of willows provides shelter for many of the small birds that have brought Ramsey Canyon its fame. Waterfalls tumble through luxuriant masses of yellow columbine, and scattered clusters of penstemmon and verbena, graced by an occasional orchid, add to the splendor of the peaceful desert canyon.

A black-tailed rattlesnake suns itself on a rock.



The mountain slopes that surround Ramsey Canyon are in Forest Service ownership for many miles. They are wild and expansive enough to provide habitat for mountain lions, which are among our country's last major predators. Javelinas, white-tailed deer, black bear and bobcats are frequently seen in the canyon and surrounding land, and a ringtail cat comes down to the Mile Hi almost every night. Ramsey Canyon helps support one of our country's few populations of coatimundi, a species that the Fish and Wildlife Service lists as requiring special protection. Two other residents of the canyon that are found here in exceptionally large concentrations are the Huachuca grey squirrel and several species of nectar-feeding bats.

Arizona is noted for its unusual reptiles. Three species of rattlesnakes found in Ramsey Canyon are so rare that they have been given protected status from commercial collecting by the Arizona Game and Fish Commission: the banded rock rattlesnake, the twin-spotted rattlesnake and the Willards or Arizona ridge-nosed rattlesnake. These three species occur only in a few mountain ranges (and only at certain elevations) in southern Arizona. Two of them also occur in New Mexico.

Ramsey Canyon is the only place in the United States where fifteen different species of hummingbirds have been seen and fourteen species have been photographed. Of these species, eight regularly nest in Ramsey Canyon and the others are migrants that arrive in the spring on their way farther north. Among the more unusual hummingbirds found here are the Lucifer and the white-eared, which is not known to nest anywhere else as far north as Ramsey Canyon. The canyon is one of the two places in the U.S. where the violet-crowned hummingbird is known to nest, and one of two places where the blue-throated hummingbird is found in significant numbers. The first recorded photograph of the Berylline hummingbird in this country was taken at Mile Hi Ranch.

Many other birds that are regular visitors to Ramsey Canyon are not often found this far north. These peripheral species include the sulfur-bellied flycatcher, the olive warbler and the Coues' flycatcher. Ramsey Canyon is the only place in the United States where the painted redstart is known to be a year-round resident. Two pairs of coppery-tailed trogons, which feed on wild grapes and madrone, have been discovered nesting in Ramsey Canyon. Golden eagles also occasionally nest here, perched on the high cliffs at the edge of Mile Hi Ranch. They can often be seen gliding majestically overhead.

The bird life of Ramsey Canyon is so spectacularly diverse that birdwatchers from all over the country have been traveling here for many years. Mile Hi Ranch has provided a place for guests to stay while observing the birds and enjoying the beauty and serenity of the canyon.

The future of Ramsey Canyon is not secure. It is one of the last remaining undisturbed mountain canyons in private ownership in southern Arizona. Many similar canyons, because they remain so cool, have been bulldozed and filled with housing developments. Sierra Vista, only ten miles from the Mile Hi, is reported to be the fastest growing city in Arizona. Its population has increased 53% in the past four years, an annual rate more than double that of Tucson. Ramsey Canyon is well within Sierra Vista's potential growth range, and the *bajada,* or foothill area below the canyon, is rapidly filling up with houses.

The Nature Conservancy has a wonderful opportunity to protect Ramsey Canyon. Two hundred and eighty acres of land, including a large section of canyon floor and both ridges, have been given by will to the Conservancy by the late Dr. N. C. Bledsoe of Tucson. Dr. Bledsoe's bequested land is adjacent to Mile Hi Ranch, which is being offered to the Conservancy by its owners, Carroll and Joan Peabody.

Mile Hi Ranch is an integral part of Ramsey Canyon, and its natural communities are inseparable from those of the Bledsoe property. The Mile Hi provides access to the canyon and also serves as a buffer between its most fragile sections and the rapidly crowding valley below. With the rest of the land that surrounds the Bledsoe property in Forest Service ownership, holding Mile Hi Ranch in a natural state will make it possible for the outstanding ecological values of Ramsey Canyon to be well protected.

In the Conservancy's ownership, the cabins, viewing stations and trails at Mile Hi Ranch will continue to be made available to people who are interested in observing birds and in studying the ecology of Ramsey Canyon. With the help of full-time caretakers, Carroll and Joan Peabody will stay on at the Mile Hi, contributing to the education and enjoyment of visitors to the preserve.

The Conservancy's work will not stop with the acquisition of this magnificent natural area. One of the most important aspects of Ramsey Canyon is the opportunity it offers for a model stewardship program. The Mile Hi facilities will allow Ramsey Canyon to accommodate visitors for extended periods and provide an education experience for many people without endangering its unique biological attributes. A Land Stewardship Committee, selected by the Arizona Project Committee and the Western Regional Office Land Steward, is currently evaluating what is present on the preserve and what activities various parts of the canyon can withstand. Composed of some of Arizona's most knowledgeable scientists and dedicated conservationists, the committee is working out plans for a creative and careful management program to ensure that the area receives the best possible use and protection.

The blue-throated hummingbird is one of 15 different species of hummingbirds found in Ramsey Canyon.

The Conservancy's option to purchase Mile Hi Ranch for the bargain price of $125,000 must be exercised no later than November 26, 1975. To cover interest, acquisition expenses and anticipated management costs for the entire canyon, the Conservancy needs an additional $55,000, bringing the total fundraising goal to $180,000.

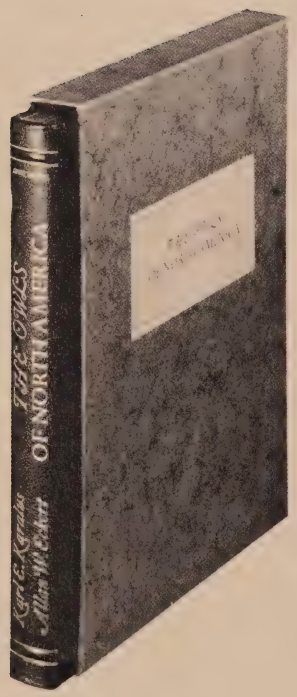
A generous challenge grant of $50,000 must be matched on a dollar-to-dollar basis by December 15, 1975. Fundraising efforts, being carried on by the Western Regional Office and by a committee of friends of Mile Hi Ranch, are proceeding rapidly in an effort to meet the deadline.

The opportunity to protect one of Arizona's most magnificent desert canyons by purchasing a relatively small amount of land will not occur again. The gift of land already received in Ramsey Canyon came to the Conservancy because of the late Dr. Bledsoe's faith in our ability to protect its natural values for others to enjoy. The Peabody's offer of Mile Hi Ranch gives the Conservancy the chance to assure that Ramsey Canyon will remain a fine example of natural diversity.

This year your holiday gift of a Conservancy membership includes an attractive nature book—the perfect gift for all who love the land.

For Christmas 1975 you can give membership in the Conservancy as part of an attractive holiday gift package. For the first time, through arrangements with Doubleday and Time-Life Books, we're able to include, without additional cost, a beautiful, colorfully illustrated wildlife/natural science publication with each new holiday gift membership. Just fill out one of the cards bound into this issue of the *News*, enclose your check to cover the gift membership costs, and mail to the Conservancy. We'll do the rest.

Conservancy membership, an original greeting card created by wildlife artist and ecologist DeVere Burt, plus a fine gift volume will all be sent in your name. This season not only will your Christmas shopping chores be easier, but you'll be helping the Conservancy with every new membership.



$500.00 Life Membership
plus a limited, signed and numbered edition of *Owls of North America*. All species and subspecies are beautifully illustrated in color and fully described. Leather bound, edged in gold.

$100.00 Guarantor Membership
plus a five-book Jacques-Yves Cousteau library: *The Shark, The Whale, Octopus and Squid, Dolphins*, and *Three Adventures*. Each volume contains over 300 pages, many full-color photographs, and an illustrated glossary.

$50.00 Supporting Membership

plus *Francis Lee Jaques: Artist of the Wilderness World*, a richly illustrated biography of one of America's greatest nature artists. Includes 64 full-page color reproductions of his nature paintings and dioramas, and 100 superb nature drawings in pen and ink, scratchboard, and pencil.

$25.00 Contributing Membership

plus the classic *Birds of America*, a complete and authoritative bird book for all ages. Hundreds of full-color photographs and line drawings, plus 106 full-page color plates by artist Louis Agassiz Fuertes. Over 800 fact- and picture-filled pages.

$15.00 Family Membership

plus your choice of any one of the 23 books in THE AMERICAN WILDERNESS, a spectacular series by Time-Life Books. Each book contains over 100 illustrations, more than half in color. Select from these titles:

The High Sierras
The Grand Canyon
The Northeast Coast
Wild Alaska
Atlantic Beaches
Baja California
The North Woods
Cactus Country
The Everglades
Hawaii
The Okefenokee Swamp
The Great Divide
The Bayous
The Northwest Coast
The Ozarks
New England Wilds
The Ancient Adirondacks
Canyons and Mesas
The Snake River Country
The Cascades
The Badlands
The Caribbean Isles
Sage Brush Country

The special Christmas package applies to **new memberships only.** The offer is good from October 15 through December 31, 1975. Orders should be made by mid-November to ensure delivery by December 25.

San Francisco Bay Before the Argonauts

Third in a series

By Anne Ilka Webb

An estuary is a sort of magic pool—a trap for solar energy and for the nutrients essential to life; a breeding ground, nursery and home for countless aerial and aquatic creatures; a place where nature cleanses water and air.

San Francisco Bay is one of the world's most magnificent estuaries. Formed by the rise of the sea following the last great ice age, it is a classic tectonic land form—the drowned southern end of the narrow rift valley formed by the San Andreas Fault. Once covering 680 square miles, the bay has today been reduced, through filling and diking, to 430 square miles. The Conservancy's San Francisco Bay Project was established in 1969 to acquire key lands in the area; to date, over 900 acres in and around the bay have been preserved.

The first known people to live along the shores of San Francisco Bay were members of the Miwok tribe, coastal Indians who depended on the bounty of the water for their food and way of life. These people both feared and respected the earthquakes that shook the land, thinking them caused by the restless stirrings of a giant who lay sleeping beneath the ground. The Miwok did not consider the land their property, but simply enjoyed it as their home. They spoiled little; they were few; they took only what they needed; they left no traces, save shell mounds and faint trails like those of elk and deer, to show they had used the estuary for hundreds of generations.

The white men who came to San Francisco Bay and other areas of coastal California were different, with profoundly different ideas about the land—convictions rooted in their traditions and in the spirit of the age of exploration and discovery. As a chronicler of Sir Francis Drake's 16th century voyage later wrote, the Europeans found in California's estuarine areas "a goodly countrie and fruitful soyle, stored with many blessings fit for the use of man."

That San Francisco Bay should have been discovered by land rather than by sea is ironic. Several famous explorers sailed unheeding past the entrance to the bay in their diligent search for what geographers of the day believed was a watercourse connecting Atlantic to Pacific, a passage which would provide the nation of the successful discoverer with a short trade route from Europe to the Orient.

Even if the discovery of so large a harbor was not the result of a great voyage of exploration, it nevertheless occurred because of the same great rivalries for land and secure trade routes that led to such voyages.

In the 1760's, officials in Mexico City grew alarmed at rumors that other nations, particularly Russia and England, planned to take over the California territory. Thus, in 1767, the Spanish viceroy to Mexico, Jose de Galvez, was granted permission by Charles III to extend Spain's empire northward. By 1769, colonizing expeditions were formed, with Gaspar de Portola, governor of Baja California, as leader, and the Franciscan father Junipero Serra as "spiritual advisor." It was the help of the Franciscans under Serra, inflamed with religious zeal and anxious to aid any undertaking promising a crop of souls, that allowed Galvez to quickly form four colonizing parties—two to go by sea, and two to go overland.

The overland groups reached San Diego by the summer of 1769 without major difficulty; but the maritime parties suffered greatly from disease and storms before reaching San Diego Bay. From this base, Portola led a company of 64 priests, soldiers, muleteers and Indians north to find the harbor of Monterey Bay, which had been discovered in 1602. The group passed Monterey Bay without recognizing it. In late October, they made camp on the lower San Francisco peninsula. There Portola dispatched his chief scout, Jose Francisco Ortega, and a few companions to explore the country ahead.

On November 2, 1769, this advance party reached the crest of a ridge of hills and saw a great body of water spread before them—San Francisco Bay. Too cold and too hungry to take advantage of their discovery, the entire Portola party headed back to San Diego.

In August 1775, Juan Manuel de Ayala piloted the supply ship *San Carlos* through the Golden Gate—the first ship to ever enter the harbor. The following year, Juan Bautista de Anza led an ex-

Spanish ships sailing for the California coast in 1769.

pedition of 240 colonists, mostly gathered from the slums and villages of Mexico, to the bay peninsula. On March 28, 1776, Anza chose the site where the mission and presidio were to be built. The presidio was completed on September 17, 1776; on October 9, *La Mision de Nuestro Serafico Padre San Francisco de Asis a la Laguna de los Delores* heard its first mass.

The establishment in 1776 of outposts on San Francisco Bay was the last step in the Spanish occupation of California. All was quiet and seemingly secure for the next several decades. Ironically, the bells which that same year tolled independence for the United States would prove the death knell for Spain's North American empire, for over those "quiet" decades, the new nation sent a stream of pioneers westward who would wrest away lands won by two centuries of Spanish toil.

During this somnambulant half century, the padres at the Mission of St. Francis strove, with indifferent success, to convert the Indians and teach them white man's skills. With the help of Indian labor, they irrigated vast ranches, and traded hides, tallow, wine, brandy, olive oil, grain and leatherwork for manufactured goods from Europe and America—trade which prospered in spite of Spain's official ban of foreign ships from California ports. The mission fathers also built the first salt ponds over bay marshlands, thus starting an industry which would one day convert over 47,000 acres of natural marsh to salt evaporators.

Little changed in California after Mexico won its independence from Spain in 1821. The missions were secularized and church lands were parceled out in *ranchos* of 4,500 to 50,000 acres to the political favorites of Mexican governors. Authority over the province was still weak, and Mexico was unable to control the growing spirit of independence among the Californios, or to keep out foreign influence and trade, especially from San Francisco Bay.

By the 1830's, visits to the bay by whalers and by Boston merchants, attracted by the brisk hide and tallow trade, were growing more frequent. In 1835, an Englishman, Captain William Anthony Richardson, cleared a plot of land on Yerba Buena Cove, two miles east of the mission, and erected the first building of what would become the city of San Francisco—a tent made of four pieces of redwood and a ship's foresail.

In that same year, the United States tried unsuccessfully to buy the bay from Mexico, having heard reports that the harbor held bright commercial possibilities. The lure of the bay was twofold: a harbor that could mean successful trade with the Far East for the young republic, and the potential wealth of the surrounding countryside with its verdant hills and valleys and heavily timbered mountains.

America had only to wait another 11 years. After the Mexican-American War began, Captain John B. Montgomery sailed the war sloop Portsmouth into the bay in July 1846, anchored in Yerba Buena Cove, and went ashore with a party of sailors and marines and raised the U.S. flag in the plaza. On January 30, 1847, a year before the treaty ceding California to the United States was signed, Yerba Buena, with its population of some 700 whites (half of them Americans) and 150 Indians, Negroes, and Hawaiians, was renamed San Francisco.

When the Gold Rush exploded in its midst, the little settlement grew overnight into a boisterous metropolis as some 40,000 gold hunters arrived by sea, another 30,000 plodded across the Great Basin, and some 9,000 came north from Mexico. The demands the '49ers and their successors put on the town and the surrounding area gave San Francisco Bay country a head start in development over other areas on the coast.

Few relics of the pre-Gold Rush days survived the subsequent disasters of fires and earthquake, or the ever-increasing needs of civic growth. Those same needs have also meant that the bay, the magnificent, magic estuary— once so elusive; then, once found, so easy to exploit—has been reduced by one-third the size it was when a carpenter from New Jersey picked up nuggets of gold from the south fork of the American river at a place called Sutter's Mill.

Anne Ilka Webb is editor of *InterACTION*, a national and international publication of ACTION, the federal voluntary service agency. A native of Annapolis, Maryland, and a resident of Washington, D.C., Ms. Webb is a former member of the Conservancy staff and has written in the past for the *News*. She also works as a freelance graphic designer and is active as an actress and director in community theater.

LISTEN TO THE PRAIRIE

by Newell Searle
Photographs by Jim Brandenburg

It is important to scientific study and to the health and sanity of man, that there be preserved some unique areas for scientists to observe nature's continuing evolution; for future generations to know historic landmarks as they were when history marked them; and for dwellers on a crowded planet to have resort to the grandeur and the peace of nature.

—Samuel H. Ordway, Jr.

We sat at the top of the hill. Around us flashed the red-gold gaillardia, purple pentstemmon, delicate white bedstraws, and other prairie flowers. Not a building in sight. The billowing green prairie had swallowed us whole. We slipped off our boots. Wiggling our toes we stretched out on the grass and tipped our hats over our eyes.

The land seemed to run away with the wind. Gusts rolled up from the far corners of South Dakota and slipped freely over the shoulder of the hill. Light green needlegrasses rippled light and dark, dark and light; their long awns flashing with a metallic sheen. Along the ground the wind and the grass whispered to each other—whispering the timeless secrets of the prairie.

We listened. Geoff Barnard, Midwest Vice President of The Nature Conservancy, and I were exploring his region's newest and largest purchase. In July the Conservancy bought a ranch whose 7,600 acres of range is in prime condition. This large prairie is dedicated to Samuel H. Ordway. Ordway was a founder of the Conservation Foundation, the author of several conservation books, and an advisor to the Secretary of Interior. The Samuel H. Ordway, Jr., Memorial Prairie will be a model preserve and research station. It will become a place to listen to the prairie.

Prairie was once the largest natural environment in North America and the most distinctive landscape in the middle west. Waving grasses billowed in the wind from Texas to Alberta, Canada, and from the Rocky Mountain ramparts to the dense oak woods of Illinois. The living sod has anchored the center of the continent for 25,000,000 years. During uncounted seasons the harsh climate selected about three hundred species of plants that are commonly found throughout the prairie region. These hardy plants thrive where

Upland plover

temperatures vary from forty below zero in winter to more than one hundred in summer. They survive where rainfall is ten inches and where it is forty inches. A nearly uniform green blanket cloaks flatlands, steep, rocky bluffs, wet swales, and gravel ridges.

Originally, there were three zones of prairie. [illegible] bluestem, Indian grass, tall sunflower, Canada anemone, death camus and other tall plants dominated the moist, tall-grass prairies that extended from Minnesota to eastern Texas. Across the high plains, from the Dakotas south to New Mexico, grew the short, tough buffalo grass, blue grama, western wheat grass and cacti of the short grass prairie. In between—east of the Missouri River—was a shifting zone of mid-grasses, a mixed prairie that incorporated species from both the tall and short grass communities. The Samuel H. Ordway Prairie in northeastern South Dakota is a mixed prairie. Its size and diversity make it a fitting memorial.

Parallel to, and east of the Missouri River, is a range of hills called the Coteau du Missouri. It is a moraine left by the last glaciers. The Coteau extends southward from central North Dakota into northeastern South Dakota. The Ordway Prairie sits astride the southern end of the Coteau. From the top of the hills the flatlands to the east sprawl smoothly to the horizon. Distant farm buildings reflect the bright sunshine and flash against the light and dark rectangles of hay and grain fields. Roads are like white threads that are woven at right angles to each other. Clumps of trees are dark green islands shimmering in the heat waves.

Because the Coteau is rough and stony, little of it has been broken by the plow. Most of it has been grazed since settlement in the 1880's. That this tract is in such excellent condition is due to the foresight of an Irish-born rancher named Tom Boylan. Boylan divided his ranch into fifteen large pastures, then rotated his cattle upon them. Each year at least one pasture received a complete rest. In addition, he grazed lightly. Light grazing actually stimulates the grass. And, by leaving much grass ungrazed, there was enough leafy surface to manufacture and store food in the roots. The rancher tested the condition of his range by seeing if a half-dollar dropped into the mulch would disappear. Under Boylan's stewardship the condition of the range actually improved.

Between the rolling hills are numerous potholes and marshes. There are more than four hundred wetlands on the Ordway Prairie. Waterfowl are abundant and about 2,000 pairs breed there. We tramped across miles of prairies and ducks were always in sight. Blue-winged teal, mallards, pintails, shovelers, canvasbacks and ruddy ducks took to the air. Bitterns stalked frogs in the sedges and cormorants fished in the small lake. Overhead, marbled godwits, willets, plovers, and phalaropes cried into the wind. From every swale came the rusty-hinge call of the yellow-headed blackbird. Sharp-tailed grouse exploded from clumps of bluestem and bobolinks, meadowlarks, and sparrows fluttered out of our way. High on a hill, the downy heads of four ferruginous hawk chicks peered over the rim of their nest. In one day we identified nearly forty species of birds.

Like the birds, the mammals are diverse. They range from harvest mice and Richardson ground squirrels to skunks, badgers, foxes, coyotes, white-tailed deer and pronghorn antelope. Several years ago, the South Dakota Fish and Game Department released a small herd of antelope on the Coteau. This "east-river" herd has persisted, spreading along the Coteau to North Dakota. One herd

frequents the ranch. This is particularly significant since the Coteau du Missouri and the mixed prairie was about as far east as the antelope were commonly known to occur.

Plant life is prolific. No one knows exactly how many species occur on the Ordway Prairie. Within South Dakota there are some 1,400 species of plants. Dr. David Holden, botanist at South Dakota State University, Brookings, believes there may be four or five hundred upland and aquatic species of plants on the Samuel H. Ordway Prairie. A plant inventory will require several years and is essential before any research can be done.

Tramping from the lowest swale to the top of a hill we could easily see the rapid transition from wet to dry prairie. Lush clumps of big bluestem, slough grass, and canary grass crowded the wet bottoms. Along the hillside little bluestem, june grass, and needle grass replaced the tall grasses. At the driest hilltops blue grama and buffalo grass provided cover. Here too, where the grass was thinnest, we found the delicate magenta flower of the mamillaria cactus.

Showy forbs and flowering plants are well distributed throughout the prairie. Some, like leadplant, prairie clover, and scurf pea are nutritious legumes essential to good animal diets and healthy soil. Bacteria on legumous roots fix nitrogen in the soil, thereby enriching it. Other plants, like pale death camus and locoweed, can be toxic to cattle. Flowering plants provide food and habitat for specialized insects. At present little is known of their role in the prairie world. All plants provide beauty. Pearly-flowered milkweeds, white Canada anemones, yellow wall-flowers, prairie roses, and orange globe-mallows seem to glow against the waving greenness. In all, we found more than thirty species of plants blooming simultaneously. This riotous show of color would continue into September with red blazing stars, goldenrods, lavendar asters, and sunflowers.

A herd of pronghorn antelopes finds refuge on the prairie.

Natural scientists are enthusiastic about the purchase of the Samuel H. Ordway Prairie. For the first time they may have available to them an area large enough for their research and observation. The sheer size of the preserve provides endless diversity and combinations of plants and animals that smaller preserves cannot. Dr. Holden, who is conducting research in tissue culture as a method of preserving and increasing sources of endangered or rare plant species, believes the Ordway Prairie is "a nature bank as well as a potential site for student field trips."

A preserve of such large size will enable plant and animal scientists to propogate and preserve endangered species; study the ecology and life support systems of plant and animal communities; study insects and methods of biological control; conduct baseline studies for range management; make detailed studies of nitrogen fixing legumes; compare the soil deposition and erosion on prairies with croplands; conduct animal, plant, and insect population studies; and re-establish missing prairie animals and birds.

Scientists at an experiment station in Cottonwood, South Dakota devised a model grassland ecosystem for the International Biological Program. It may be possible to test the accuracy and validity of this model on the Ordway Prairie.

Prairie preservation is essential to the nation. Prairie—the broad community of grasses and showy plants—is a fast disappearing feature of the American landscape. A century ago the grasslands were only lightly settled. Bison still wandered in dark herds. Indian tribes hunted along the Coteau, wintering in the coulees, running buffalo, digging breadfruit, and leaving the tipi rings that can still be found on the ranch. But, in the last century the best prairies have rolled silently under the steel plow. Fields of alfalfa, corn, wheat, and oats have replaced the blazing star, side-oats grama, coneflowers, and buffalo beans. Like the Coteau, most of the remaining prairie lands are rough and stony, defying the plow. Most of these lands are grazed, and grazed heavily. Many plants once common to all prairies are now threatened with extinction.

A ferruginous hawk watches over its four downy chicks.

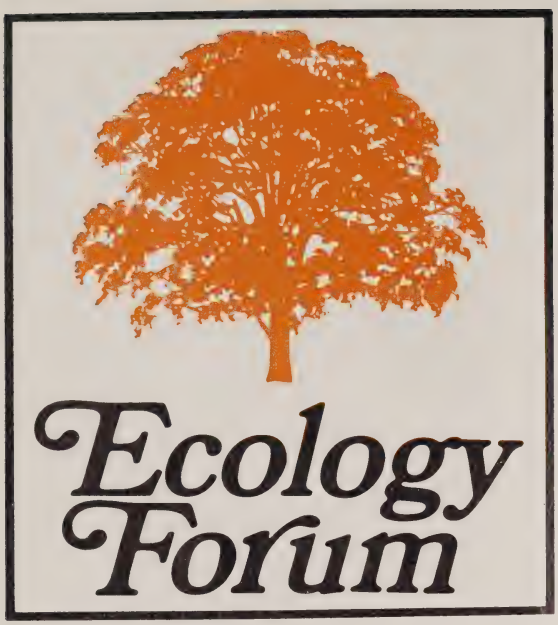
The extinction or reduction of prairie plants would be a needless waste of valuable resources. It is dangerous and foolish to suppose that we have discovered all the cereal crops we will ever need, or have found all the medicinal extracts necessary to our health. Agricultural scientists depend upon the broad genetic base of wild grasses to help them develop new, and disease-resistent strains of hybrid seed. Medical research is only beginning to test medicinal abstracts of common plants found around the world. In recent years scientists discovered a possible cancer-fighting extract in an obscure plant growing in a South African forest preserve. What other medical resources are yet to be discovered can only be guessed at. The Samuel H. Ordway Prairie was not purchased merely to preserve beautiful scenery. It was an investment in the genetic future of many plants. As such it is a vast bank of genetic secrets available for study and use.

Managing these resources will be a full-time job. Fortunately, the ranch buildings are usable and will become the headquarters for the caretaker and a full-time research station. Barnard foresees the necessity for a nursery and greenhouse to propogate rare or missing species of prairie plants. He also hopes to re-establish prairie plants and native grasses on 600 acres of old cropland now on the preserve. This in itself would be a valuable experiment. Management of the land will continue to follow the precedent set by Tom Boylan. Grazing will remain the principle management tool. Fire is not presently feasible because winds are constant and strong and there are few natural firebreaks on the preserve. Furthermore, grazing will help to complete the energy cycle by breaking down plant material, turning it into animal waste, and enabling insects and bacteria to release and recycle plant nutrients.

Although the ranch will be managed by a resident caretaker, he will have the backing and assistance of a local management committee. Several neighboring ranchers, employees from the U.S. Fish and Wildlife Service, the Soil Conservation Service, and other agencies are willing to assist with preserve management.

The Samuel H. Ordway Prairie is a valuable resource. Lying on the windy hillside, feeling the grass tickle our feet, we pondered the future use and development of the preserve. It would require years of planning, work, and experimentation before it showed results. It would bring together ecologists, microbiologists, entomologists, zoologists, botanists, wildlife and range specialists. Like us, they too would be listening to the prairie, listening for the timeless secrets.

Newell Searle is a freelance writer living in Minneapolis, and author of *A Land Set Apart*. He is also a volunteer preserve manager for the Conservancy's Minnesota Chapter. **Jim Brandenburg** is a freelance nature photographer and photo editor for the *Worthington (Minn.) Daily Globe*.



No. 17
by Robert E. Jenkins

ENDANGERED PLANT SPECIES: A Soluble Ecological Problem

Following its mandate in the amended Endangered Species Act of 1973, the Smithsonian Institution prepared a first report on *Endangered and Threatened Plant Species of the United States* which was made public last winter. Prepared with the assistance of professional botanists from every region of the country, the report lists 2099 species of vascular plants which are thought to be extinct, endangered, or threatened in 49 states (Hawaii, with its fragile island biota, has a full half of its entire flora in critical categories and is treated separately in the report). For the mainland states, the listed species represent over 10% of the native higher plants.

This disturbing information can be treated as just another environmental horror story demonstrating our impotence in managing our affairs or it can be looked at more constructively. The problem is not so intractable as the raw statistics might suggest and can be broken down into a series of tangible units and tasks to which any individual or group could make a measurable contribution.

For the most part, endangered plant species are either localized endemics or more widespread species which occupy scattered parcels of specialized habitat. In other words, they do not occupy very much space today, and within the last several thousand years, at least, probably never did. As far as I can ascertain, there are no endangered plants whose situation is analogous to that of the peregrine falcon or the timber wolf—no once-widespread dominants which have been catastrophically reduced to the brink of extinction. Redwoods and ginseng have been decimated, but they are not endangered, and we probably couldn't eradicate them if we tried.

In almost every instance the story is the same: plant species which are presently threatened were always relatively rare and usually relatively localized, and they have been brought to their present precarious state indirectly—by destruction of their habitats. Some species or varieties have also been reduced by direct exploitation, usually because they are horticultural curiosities, but this seriously affects less than a hundred. Habitat destruction is nearly always the main problem.

One red herring often thrown into endangered species discussions is the suggestion that the incipient extinction of all of these species might be "natural." There are a couple of ways of dealing with this contention. First, we know very little about extinction in nature. The great extinctions of the past (where have all the dinosaurs gone?) are the basis for endless speculation, but we actually know nothing whatever about them. We have observed localized population extinctions with subsequent recolonizations, but this seems to be just a way of life for many perfectly healthy species. We have seen whole species go extinct (though they usually wait until we're not looking to do it), but to my knowledge this has always been directly or indirectly at the hand of man. We often condescendingly say that certain seemingly ill-adapted species (like the preposterous double coconut of the Seychelles) are "on the road to extinction," but if natural events are overtaking them, it is at too slow a rate for us to measure. The speed at which this crisis has arisen is a tip-off, since these sorts of biological phenomena just don't operate at the frenetic pace of bulldozers and herbicides. As a rule of thumb, human activities are responsible for 99.999 . . . % of all present endangerment of species.

Another approach to the "let natural events take their course" argument is to inquire whether it is also supposed to apply to wheat and cows and *Homo sapiens,* all of which seem to possess as many intimations of mortality as other species. The first two, having suffered great changes at the hands of cultural selection, may now be incapable of existing under natural conditions, and the third could well meet its end under unique circum-

stances. Straw men aside, I suggest that we preserve species for our own purposes because we believe they have or could have value to us regardless of their biological destiny. The appropriate arguments hardly need repetition among Conservancy people, but the Smithsonian report stated the case with commendable brevity:

> Many species of rare, endangered, and threatened plants grow in severe or unusual habitats and often possess qualities that make them particularly valuable to man: they help provide diversity and greater ecological stability, they stock unstable and unusual habitats, they are sources of medicines and other chemicals, they are bioindicators of minerals and metal ores, they possess potential value for food crops and horticultural use, and they provide man with sources of aesthetic value. Loss of any species of plant represents an irretrievable loss of unique genetic material or germ plasm that cannot be duplicated and narrows man's future options for his own use of the environment.

The endangered plant species situation can therefore be stated as follows: there are a goodly number of potentially valuable plant species scattered all over the country which are apt to be eradicated by human activities, primarily through habitat destruction, unless we do something.

The solution to this problem looks to be pretty straightforward. Even including some relatively obvious matters of legal protection covered in the Smithsonian report, the first and main recommendation is for the preservation of habitat. The task really ought not to be a daunting one.

Endangered plant species are first of all rareties, which means that this ten percent of the American flora occupies the very least amount of ground—I should guess no more than a small fraction of one percent. Narrowing our focus to just the 761 species classified as endangered, an estimated two-thirds of these can be found on federal lands, leaving only 250 to be dealt with on state and private property.

Assuming that some of these species are already on protected lands (e.g. Boggs Lake, California; Charles Harrold Preserve, Georgia), and that some are known to occur together in the same communities, we could perhaps create a minimum preserve system (which would at least contain one or more populations of each endangered plant species) by establishing only 50 to 100 new preserves. The Conservancy alone has been setting aside several times that number each year, and it is conceivable that with a little systematic effort we could fill the most critical gaps in such a system of habitat preserves in just a few years.

By the time this is published, Congress will probably have convened hearings to review performance under the Endangered Species Act. The hearings will probably be seized as an opportunity to attack the Act as detrimental to our more important interests, a potential barrier to rapid economic progress, an unreasonable hindrance to doing whatever we think of next, etc. This is, of course, palpable nonsense. The conflicts which have arisen, or are likely to, are primarily caused by the lack of support the Act has received. A decent funding commitment for increased professional staff, assistance to ongoing inventory and data-gathering efforts, and the beginnings of a habitat acquisition program in the near future could work wonders. If we could identify the critical habitat areas well before anyone begins pouring concrete on them, we could nearly always find equally good alternative development sites, and at the same time the preservationists could focus their energies on positive means to protect the critical areas.

Because endangered plant species are tangible and widespread and because many of them could be adequately perpetuated on small to medium-sized preserves, there is a terrific opportunity presented to individuals who have been casting about for an effective way to contribute to a better environment. Finding endangered species localities is a major objective of our Heritage inventories, but we can use all the help we can get to conduct literature surveys, investigate museum collections, verify and evaluate localities in the field, or even, in some instances, to conduct field searches for as yet undiscovered populations of rare species. Encouragingly enough, since the report's publication, no fewer than three of the hundred species thought extinct have been rediscovered. After priorities are established, there will be lands to preserve, and one of the best ways to do this is still the traditional Conservancy way with project committees working on outright acquisition through gifts or bargain sales. Over the long run, such preserves will require management and the status of the target species will need to be monitored. This can be a most rewarding and educational way to participate.

There has been far too much unproductive wringing of hands over endangered species, at least in this country. Among the many important environmental tasks facing us, the preservation of endangered plant species is one of the most accomplishable. Let's just do it.

PATCHES AVAILABLE

Green and white patches embroidered with the Conservancy's oak leaf logo are available to Conservancy members for $1.00. Write to Fran Angelone, Communications Department, at the national office.

PUT THE CONSERVANCY IN YOUR WILL—LEAVE A LEGACY

This year, The Nature Conservancy received the following nine bequests totaling $115,507, the largest of which was over $65,000.

Alice K. Spitler, Ohio

Helen Schulhoff, New York (proceeds to Eastern New York Chapter)

Warner Eustis, Massachusetts (proceeds to endowment, Ledgewood Preserve, Maine)

J. Sellers Bancroft, Delaware

Alla A. Libbey, Massachusetts

Erma Murray, California

Edith M. Thorn, California

Marie de L. West, California (proceeds to Mile Hi Ranch Preserve)

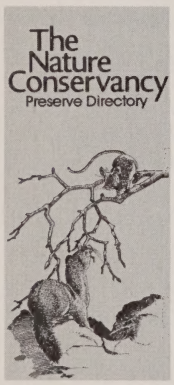
Alice Morgan Wright, New York (proceeds to Eastern New York Chapter)

Proceeds not specifically designated are placed in the Conservancy's Guarantee and Income Fund, where they will underwrite our land preservation program.

The Conservancy hopes that, in reviewing your plans for yourself and your family, you will remember us —and our important goals. If you would like further information on the subject of wills and bequests, we will be happy to furnish more material or to discuss these matters with you on a totally confidential basis.

If you wish, the following clause can simply be incorporated into your will to insure a gift to The Nature Conservancy:

> I hereby give, devise, and bequeath to The Nature Conservancy, a non-profit, education, scientific, and charitable institution, incorporated in the District of Columbia, and now of 1800 N. Kent Street, Arlington, Virginia, the sum of _____dollars, to be used for the Conservancy's generous purposes and objectives.



The Nature Conservancy's PRESERVE DIRECTORY

Your key to over 700,000 acres of protected natural land

An indispensable source book for everyone concerned about our precious natural heritage. Features valuable facts about over 1200 Conservancy projects, including location, acreage, prominent natural features, and up-to-date information sources for hikers, educators, and naturalists. A special section highlights eight preserves you and your family will enjoy. Also features fold-out map and complete directory of TNC offices and chapters. Over 150 fact-filled pages.

To order your copy, send $3.00 ($5.00 for non-members) to:

The Nature Conservancy, Dept. PD, 1800 N. Kent St., Arlington, Virginia 22209

ANNUAL REPORT 1974

The Nature Conservancy's Annual Report for 1974 is now available on request. Write to Ms. Sue Dodge, Director of Publications, at the National Office.

For the first time since 1969, the Conservancy returns to the west for its Annual Meeting and Conference.

PORTLAND, OREGON
May 22 and 23, 1976

Twenty-Sixth Annual Meeting and Conference

Headquarters for the Conference will be Portland's Benson Hotel.

Please reserve the dates and make plans to attend. The 1976 event promises to be one of the most interesting, informative and enjoyable conferences in the Conservancy's history.

PHOTOGRAPHS: Bettmann Archive, p. 15; Dr. Herbert Clay, p. 11; Al Hesselberg, p. 10; Tim Loomis, p. 9; Bill Parsons, inside back cover; Robie Ray, p. 4.

The
General Fund
needs your
support

THE NATURE CONSERVANCY

NON-PROFIT ORG.
U.S. POSTAGE
PAID
PERMIT NO. 9388
WASHINGTON, D. C.

Eastern Regional Office
294 Washington Street, Room 850
Boston, Massachusetts 02108
(617) 542-1908

Southeast Regional Office
4285 Memorial Drive, Suite J
Decatur, Georgia 30032
(404) 294-7054

Midwest Regional Office
325 West 15th Street
Minneapolis, Minnesota 55403
(612) 871-6231

Western Regional Office
425 Bush Street, 5th Floor
San Francisco, California 94108
(415) 989-3056

New York Development Office
2 East 54th Street
New York, New York 10022
(212) 751-2190

Mid-Atlantic Field Office
1800 North Kent Street
Arlington, Virginia 22209
(703) 524-3151

Indiana Field Office
205 Washington Street
Columbus, Indiana 47201
(812) 376-9285

Northwest Field Office
1234 N.W. 25th
Portland, Oregon 97210
(503) 228-9561

Michigan Field Office
Suite F, 531 North Clippert Street
Lansing, Michigan 48912
(517) 332-1741

Rocky Mountain Field Office
820 Sixteenth Street, Suite 420
Denver, Colorado 80202
(303) 623-8088

THE NATURE CONSERVANCY

Land conservation through private action.

National Office
1800 North Kent Street
Arlington, Virginia 22209
(703) 524-3151

Address Correction Requested

102324R 1B 00 006 7607
MISS HAZEL A JOHNSON
770 WILLIAMS ST
NEW LONDON CT 06320